



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Christopher J. Weis	Project Number J0837
Project Title Electric Motors Are Everywhere!	
Objectives/Goals The purpose of this project was to learn about electric motors and variations of electric motors. I wanted to learn about the parts inside of an electric motor and what makes it turn. Electric motors are found in things as big as cars and as tiny as watches. They are very important in contemporary life. My hypothesis was that round coils with multiple magnets would require less current and produce more hertz than the rectangle coils. Additionally, I expected that the more windings on the coil would produce more electricity for the magnet to pull.	
Abstract Methods/Materials My procedure began with making a fixture to hold the coil windings so I could measure the speed (hertz) and electricity (amps) generated. I used a Volt Meter to obtain my measurements and connected it differently to measure hertz and amps. Volt Meters are connected in parallel to the circuit.	
Results The 50 wrap coil, 15 gauge wire and one magnet was energy efficient; however, the fastest coil was the 35 windings, 15 gauge wire, and 1 large and 1 small magnet. The worst in these categories were the 20 and 22 gauge coils because they did not run. Round coils and more wraps worked best.	
Conclusions/Discussion I was surprised that the more magnets I used, decreased the speed and flow of electricity. The most efficient motor uses less current and produces more speed. My results showed that the most energy efficient coil was the one with 50 wraps of coil, 15 gauge wire and 1 large magnet because it used the least current. The worst performers were the 20 and 22 gauge coils because they did not run. The fastest coil was the 35 windings, 15 gauge wire, and 1 large and 1 small magnet. The slowest coils were the 20 and 22 gauge. In conclusion, round coils and more wraps worked best.	
Summary Statement In conclusion, electricmotors can be designed better by changing some important parts.	
Help Received Mom helped me type report; Dad helped me make model and test it	